CLAIMS

What is claimed is:

1. A method of transferring video through an interface comprising:

compressing a first portion of a block of coefficients, the block of coefficients representing a block of pixels;

sending the compressed first portion of coefficients to the interface;

compressing a second portion of the block of coefficients; and

sending the compressed second portion of coefficients to the interface.

2. The method as claimed in claim 1 wherein a reception device receives and decompresses the first and second portions of coefficients, combines the decompressed first portion of coefficients with the decompressed second portion of coefficients to generate a combined coefficient matrix corresponding with the block of pixels.

3. The method as claimed in claim 1 wherein the matrix of coefficients has a low frequency portion and a high frequency portion, wherein compressing the first portion of the coefficients comprises compressing the low frequency portion of the coefficients, and wherein sending the compressed first portion of coefficients sends the compressed low frequency portion of coefficients to the interface,

and wherein compressing the second portion of the coefficients comprises compressing the high frequency portion of the coefficients, and wherein sending the compressed second portion of coefficients comprises sending the compressed high frequency portion of coefficients.

4. The method as claimed in claim 1 wherein a video is comprised of a sequence of frames and wherein each frame of the sequence is comprised of a plurality of blocks of pixels, and

wherein compressing and sending the first portion of coefficients are performed for each block of pixels of each frame in the sequence prior to performing compressing and sending the second portion of coefficients.

5. The method as claimed in claim 4 further comprising:

repeating compressing and sending the first portion of the coefficients for a set of initial frames of the sequence; and

performing compressing and sending the second portion of coefficients for each block of pixels for frames subsequent to receiving a switch mode signal,

wherein the reception device decompresses and decodes the first portion of coefficients for each frame to match one of the initial frames with a previously sent frame,

the method further comprising:

receiving the switch mode signal from the reception device; and

switching from compressing and sending the first portion of coefficients to compressing and sending the second portion of coefficients.

6. The method as claimed in claim 1 wherein a reception device receives and decompresses the first and second portions of coefficients, combines the decompressed first portion of coefficients with the decompressed second portion of coefficients to generate a combined coefficient matrix corresponding with the block of pixels, and generates a bit stream from the combined coefficient matrix.

7. The method as claimed in claim 1 wherein the second portion of coefficients is exclusive of coefficients of the first portion.

8. The method as claimed in claim 1 wherein the video is comprised of a sequence of digital frames and wherein each frame of the sequence is comprised of a plurality of blocks of pixels, and wherein a transform is performed on each block of pixels resulting in the matrix of coefficients corresponding with each block of pixels, the method further comprising:

receiving a sequence of analog video frames; and

converting the sequence analog video frames to the sequence of digital video frames, wherein each pixel is represented by at least one byte.

9. The method as claimed in claim 1 wherein the interface is low data rate interface providing a communication link with a reception device having a data rate between 1 and 20 Mbps.

10. The method as claimed in claim 9 wherein the interface is a universal serial bus (USB) interface.

11. The method as claimed in claim 1 further comprising performing a transform on the block of pixels resulting in the matrix of coefficients corresponding with the block of pixels.

12. The method as claimed in claim 11 wherein transforming the block of pixels comprises performing a discrete cosine transform (DCT) on the block of pixels resulting in a matrix of DCT coefficients corresponding with the block of pixels.

13. A method of generating a high quality video bit stream from coefficients received over an interface, the method comprising:

decompressing a first portion of coefficients;

decompressing a second portion of the coefficients received subsequent to the first portion; and

combining the first and second portions of coefficients to generate a combined coefficient matrix corresponding with a block of pixels.

14. The method as claimed in claim 13 wherein the block of pixels is represented by a matrix of coefficients comprised of the first and second portions, the first portion being compressed prior to being sent over a low data rate interface.

15. The method as claimed in claim 13 wherein a video is comprised of a sequence of frames and wherein each frame of the sequence is comprised of a plurality of blocks of pixels, each block of pixels being represented by a matrix of coefficients comprised of the first and second portions,

the method further comprising:

receiving for a second time the first portion of coefficients for each block of pixels of initial frames of the sequence;

matching one of the initial frames with a previously received frame to identify a reference frame; and

signaling a video capture device to send the second portion of coefficients for each block of pixels of frames subsequent to the reference frame.

16. The method as claimed in claim 15 wherein the first portion of coefficients is comprised of low frequency coefficients of the matrix and the second portion is comprised of high frequency coefficients of the matrix, and wherein signaling the video capture device instructs the video capture device to switch from compressing and sending the low frequency coefficients of the matrix to compressing and sending the high frequency coefficients of the matrix.

17. The method as claimed in claim 13 wherein a video is comprised of a sequence of frames and wherein each frame of the sequence is comprised of a plurality of blocks of pixels, each block of pixels being represented by a matrix of coefficients comprised of the first and second portions,

the method further comprising:

receiving the first portion of coefficients for each block of pixels for frames of the sequence over the interface;

storing the first portion of coefficients for each block of pixels for frames of the sequence; and

upon completion of receiving the first portion of coefficients, receiving the second portion of coefficients for each block of pixels for frames of the sequence.

18. The method as claimed in claim 13 wherein a video is comprised of a sequence of frames and wherein each frame of the sequence is comprised of a plurality of blocks of pixels, each block of pixels being represented by a matrix of coefficients,

the method further comprising providing a indication to resend the first portion of coefficients for initial frames of the sequence upon completion of receiving the first portion of coefficients for each block of pixels of each frame of the sequence.

19. The method as claimed in claim 18 wherein the indication comprises sending a replay signal to a video capture device.

20. The method as claimed in claim 18 wherein the indication comprises displaying a replay signal to instruct a user to replay the video.

21. The method as claimed in claim 13 wherein a video is comprised of a sequence of frames and wherein each frame of the sequence is comprised of a plurality of blocks of pixels, each block of pixels being represented by a matrix of coefficients comprised of the first and second portions, the method further comprising:

transforming the combined coefficient matrix for each block of pixels to a bit stream representing the video; and

storing the bit stream.

22. A system for generating a bit stream representing a high quality video comprising:

a serial interface to receive first and second portions of coefficients of a coefficient matrix;

a decompressing element to decompress the first portion of coefficients and to decompress the second portion of coefficients, the second portion being received subsequent to the first portion; and

a combining element to combine the first and second portions of coefficients to generate a combined coefficient matrix corresponding with a block of pixels.

23. The system as claimed in claim 22 further comprising a processing element to match an initial frame with a previously received frame and send a signal to the interface during a vertical blanking interval, the signal requesting a video capture device to compress and send the second portion of coefficients.

24. The system as claimed in claim 22 wherein the processing element generates the bit stream from the combined coefficient matrix, and the system further comprising a storage element for storing the bit stream.

25. A video capture device comprising:

a compressing element to transform a block of the pixels to a corresponding matrix of coefficients and compress a first portion of the coefficients;

a serial interface to send the compressed first portion of coefficients over a serial link; and

a controller to instruct the compressing element to compress a second portion of the coefficients and cause the compressed second portion of coefficients to be sent to the serial interface.

26. The device as claimed in claim 25 wherein the controller instructs the compressing element to compress the second portion of the coefficients after the compressed first portion of coefficients have been sent over a serial link.

27. The device as claimed in claim 25 wherein a video is comprised of a sequence of frames wherein each frame of the sequence is comprised of a plurality of blocks of pixels, and the compressing element transforms each block of pixels a matrix of coefficients corresponding with each block of pixels.

28. The device as claimed in claim 27 wherein each matrix of coefficients has a low frequency portion and a high frequency portion, wherein the compressing element compresses the low frequency portion of the coefficients for each matrix of coefficients, and the interface sends the compressed low frequency portion of coefficients for each block of pixels.

29. The device as claimed in claim 27 further comprising a decoder element to receive a sequence of analog video frames and to convert the sequence of analog video frames to a sequence of digital video frames, wherein each pixel is represented by at least one byte.

30. The device as claimed in claim 25 wherein the serial interface is a universal serial bus (USB) interface providing a communication link with a reception device and having a data rate between 1 and 20 Mbps, and wherein the compressor includes a hardware accelerator to perform a discrete cosine transform (DCT) on the block of pixels resulting in a matrix of DCT coefficients corresponding with the block of pixels.